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TYPE I PROGRESS REPORT (For the Period 9 December 1973 - 8 February 1974)

TITLE: Effects of Construction and Staged Filling of Reservoirs on the Environment and Ecology MMC #341

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OBJECTIVE: To study the environment and ecological impact of the construction and operation of Oakley Dam and Friends Creek Impoundment located on the Sangamon River in East Central Illinois.

1. There have been some contractual problems between the Corps of Engineers' Chicago District Office (CDO) and the University of Illinois regarding the Springer-Sangamon Environmental Research Program (SSERP). This program is the source of ground truth information for this ERTS-1 project. It is expected the contract will be signed sometime in February 1974. The ground data collected since 1 July 1973 is not in suitable form for correlation with imagery and/or photographic data. After the signing of the contract, this problem is expected to be rectified.

2. Underflight products have been received for the following dates: 12 September, 25 October, and 30 November 1973; they are excellent.

3. On 22 January 1974, a letter was sent to the Technical Monitor assigned to this project by NASA. In it, CERL requested authorization to order CCT's for nine (9) images.

4. Regarding the digital classification and mapping program, the consultant group at the University of Illinois has made extensive modification to the Purdue University (LARS) program. The modified LARS program is now fully operational. The main features of this program are the following:

a. The program has multiple input capabilities. It can utilize either digital information directly from the ERTS-1 CCT's or optically processed and analyzed imagery.

b. The program will perform two major operations: (1) manipulate the raw data in a manner analogous to photographic enhancement (i.e., tonal slicing, edge grade enhancement) and (2) combine the data using clustering and discriminate function algorithms for multivariate normal classifications.

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c. The program has multiple outputs: (1) it can produce line printed maps; (2) CalComp plots, with optional coloring routines; or (3) logical overlays of maps for change detection.

5. The program for terrain analysis has been completed. It has been thoroughly tested and is now fully operational.

6. Work planned for the next two months:

a. Photographs of the study area, supplied by the CDO, will be mosaicked and correlated with the ground data. These photographs will then be used to evaluate the classifications derived by the optical and digital analysis of ERTS images.

b. A number of areas will be used to further test the detection system, a request for authorization to order the necessary CCT's was submitted on 22 January 1974.